

# Construction and Demolition Debris Reuse & Recycling–

an Integral Part of  
Brownfield Cleanup & Redevelopment



EPA Region 5 – Chicago  
July 20, 2006

# Quick Overview

What is C&D debris?

Why recycle it?

When and how can we recycle?

Case Studies

Recycling in your Community

What You Can Do

Additional Resources

# What is C&D Debris?

- **C&D debris comes from.....**

construction, renovation & demolition of  
buildings, roads & bridges

*(about 136 million tons from buildings alone in 1996!)*

- **C&D debris includes.....**

concrete, asphalt, wood, gypsum wallboard, asphalt roofing  
materials, metal, bricks, glass, plastics, building components, trees,  
soil, rocks

- **C&D debris is *generally* non-hazardous.**

- Hazardous materials, e.g., asbestos, lead paint and mercury,  
must be handled properly! *(check State rules)*

# Why Recycle C&D Debris?

1. Conservation and reuse are in the spirit of Brownfield Cleanup & Redevelopment
2. It's a ranking criteria for Region 5's Brownfields grants
3. Save money
4. Conserve resources and energy
5. Extend the life of landfills
6. Create jobs & support local businesses
7. Provide job training through deconstruction
8. Earn LEED credits
9. It's the right thing to do!

# Resource Conservation Challenge

- Millions of tons of usable material are needlessly buried each year.
- We can save energy and reduce use of natural resources.



- *Resource conservation also includes reuse!*
- Region 5 increases reuse and recycling through grants, partnerships with stakeholders and outreach & education.

# When can we Recycle?

**You can recycle at every stage of your project.....**

## ■ **Demolition, Deconstruction or Renovation**

- Soft stripping (a.k.a. “cherry-picking”)
  - Cabinets, windows, doors, plumbing fixtures, etc.
  - Ceiling & Flooring materials (tiles, tongue-and-groove)
  - Metal
  - Concrete and masonry
  - Architectural salvage (e.g., old-growth beams and timbers, stained glass, unique decoration)
- Deconstruction
  - Maximize material recovery and quality with reuse in mind
- Moving entire buildings!

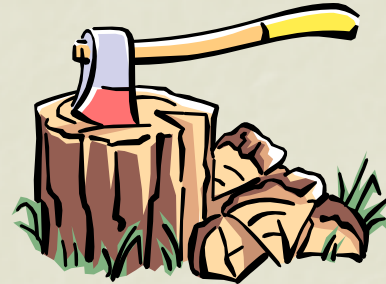


# When can we Recycle?

You can recycle at every stage of your project.....

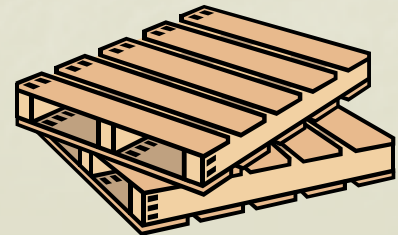
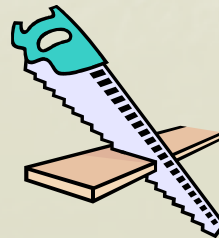
- **Land Clearing**

- Brush, tree-stumps, soil, rocks



- **New Construction**

- Recover scrap metal, wood, concrete, wallboard, cardboard



# How can we Recycle C&D Debris?

There are many ways to reuse and recycle.....

- **Reuse on-site** (*check State rules regarding reuse*)
  - Pulverize concrete, brick, blocks for use as backfill
  - Mulch vegetative debris and unpainted, untreated wood waste
  - Plumbing fixtures, appliances, HVAC equipment, cabinets, windows, bricks, ceiling and floor materials
- **Donate for reuse**
  - Habitat ReStore and other reuse stores
- **Arrange off-site recycling with hauler** (separated or mixed)
  - Metal (structural steel!)
  - Concrete
  - Wood
  - Asphalt



Clip art courtesy of Wisconsin Department of Natural Resources



# Nuts 'n Bolts of C&D Recycling

*(from WasteCap Wisconsin's "Construction and Demolition Waste Management Toolkit," 2005.)*

## Pre-planning Phase

1. **Issue a written statement committing to recycle on the project.**
2. **Develop contract language requiring recycling by all contractors. Set goals!** (See website for examples)
3. A single person controls all waste management activities for the project.
4. Identify materials to be reused/recycled.
5. Select hauler(s) that provide markets for all recycled materials.



# Nuts 'n Bolts of C&D Recycling

## Execution Phase

1. Educate workers about the recycling program.
2. Clearly label all dumpsters. (Signs, signs, signs!)
3. Monitor dumpsters at least once daily.
4. Immediately correct mistakes.
5. Collect recycling data and report to workers regularly. Celebrate success!
6. Revise as you go.
7. **Keep cumulative records of recycling results and report your success.**



# Case Studies & Cost Savings

Every project is different.....

- ? Type, quantity and quality of materials?
- ? Local recycling markets?
- ? Local tipping fees & transportation costs?

.....but if it's done correctly, you'll save money!

An awe-inspiring example:

*Reuse and recycling during a demolition & new building project in Nashville resulted in a 98.5% diversion rate and a net cost of only \$115,000 compared with the \$2.4 million initial budget!!*

(This Gershman, Brickner & Bratton case study, and others, are on the website!)

# C&D Recycling in your Community

Many communities, including the City of Chicago, mandate C&D debris recycling as a strategy to meet local recycling goals and conserve landfill space.

(See website for examples and model ordinance language!)

# To Recap: What you can do....



1. Make the decision to recycle C&D debris on your Brownfield project
2. Require contractors and subcontractors to reuse and recycle, setting diversion/recycling goals
3. Evaluate ways to foster C&D recycling in your community

# Brownfields C&D Recycling Resources

[www.epa.gov/reg5rcra/wptdiv/solidwaste/debris/index.htm](http://www.epa.gov/reg5rcra/wptdiv/solidwaste/debris/index.htm)

1. Resource Conservation Challenge
2. C&D Debris Fact Sheets
3. Toolkits, Best Management Practices, Guidebooks and Reports
4. Sample Specifications for Recycling
5. Case Studies
6. Sample C&D Recycling Ordinances
7. Additional Internet Resources





# Technical Assistance Region 5's Solid Waste Program

[www.epa.gov/reg5rcra/wptdiv/solidwaste/debris/index.htm](http://www.epa.gov/reg5rcra/wptdiv/solidwaste/debris/index.htm)

**For C&D and industrial materials recycling & reuse assistance:**

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***\* We're available to participate in outreach and educational activities in your community.***